

# **Solving problems in nursing? Integrating problem based learning within the pre-registration nursing curriculum**

**Susan Brock**  
School of Health

## **Abstract**

In response to a wider agenda, this innovation aimed to develop a Problem Based Learning approach to support teaching and learning in pre-registration nursing at Level 1. RN/DipHE students on 3 University sites were divided into 25 groups, each with an average of 11 members. Each group was allocated 1 staff member who facilitated them for 15 contact hours per student, to work on 3 enigmas. Evaluation of the project suggests that both staff and students further developed a wide range of necessary skills within a supportive project structure.

## **Background and rationale**

Recently, significant changes in the nature of nurse education (Fitness for Purpose 1999, Making a Difference 1999), have led to an increased focus on quality assurance and, most importantly, on practice focused education. Staff and students must continue to acquire the necessary knowledge and skills to meet this agenda. One learning strategy which may help meet these demands for a practice focused nursing curriculum is the 'working through' of clinical problem situations (Cooke and Donovan 1998).

Proponents of problem based learning (PBL) argue it is one approach to learning, that facilitates health care professionals to develop: problem solving skills (Andrews and Jones 1996); clinical reasoning and deep learning (Bentley and Nugent 1996, Andrews and Jones 1996, Spencer and Jordan 1999). It is also viewed as an instructional strategy to promote self-directed learning (Spencer and Jordan 1999) and the acquisition of contextualized, integrated knowledge (Glen and Wilkie 2000).

Within this approach, the focus is usually a written problem, or enigma, comprising phenomena that need explanation (Dolmans and Schmidt 1996). New knowledge is gained by students, who work in small groups (with a facilitator rather than a teacher) using the 'PBL process' on a set problem or enigma. This contrasts with other more traditional learning approaches in which new knowledge is the apparent prerequisite for working through a subsequent problem.

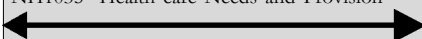
In order to operationalize the approach within SoH, staff development and advice on curricular change was required. Thus, in June 2001, the School of Health employed consultants from the University of Bradford. As a consequence, most academic staff attended a 3 day study programme in which they were introduced to various aspects of PBL, such as, the underpinning philosophy and also to pragmatic issues such as changes to the role of the lecturer. This project formed a natural continuation of the consultancy work, and provided an opportunity for staff to further develop their PBL skills and knowledge within a supportive and collaborative context.

## The innovation

This project was situated within term 2 of the RN/DipHE. This term contains 15 weeks and is located 16 weeks into the training of a nurse student. Prior to this term, students study 4 theoretical modules, formatively at Level 0, followed by 7 weeks of summatively assessed clinical placement. In term 2, they study 3 summative theory modules over 6 weeks, and then undertake 9 weeks of summative clinical placement. Prior to the project, links between theory and practice were already facilitated in various settings. For example within: a summatively assessed portfolio; clinical placements; and, also via 2 modules which place particular emphasis on both 'practical skills' acquisition such as injection technique, and on the underpinning theory.

Within the RN/DipHE program some formal 'taught' contact with teaching staff has been removed from individual modules (which are now 36 hours, as opposed to 45 hours) and located in a central pool, termed Extra Modular Study (EMS). This time is then time tabled, in both theory and practice weeks, thus providing opportunities for integrating different aspects of the curriculum. It was decided that this PBL innovation would be delivered in the 27 hours of EMS time located in the 6 weeks of theory in this Term 2 (Please refer to Figure 1 for further clarification).

Figure 1. Theory and practice in the RN/DipHE, Terms 1 and 2.

Term 1 - Theory								Term 1 - Practice						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NH0014 Developing Professional Practice NH0013 Communication and Customer Care NH0015 Practice of Nursing I NH0000 Developing Key Skills														
Term 2 - Theory						Term 2 - Practice								
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
NH1036 Evidence Based Practice NH1034 Practice of Nursing II NH1035 Health care Needs and Provision														
														
PBL introduced in these weeks														

Every academic member of the School of Health was given the opportunity to participate in the project in some way. 33 responded to the soliciting email and asked to be part of both the email group and a PBL team. 25 of these then facilitated PBL groups. Members of the overall PBL team made all relevant decisions. A SWOT analysis (Appendix 1), undertaken in the first meeting, formed the basis of the preparations and was re-evaluated in subsequent planning meetings leading to:

- **hardcopy 'PBL resource handbooks'** being written for staff and student use. These included brief materials on the purpose of PBL and ground rules etc. The exact content may be accessed on WOLF in the following:
- **an on-line 'Problem based learning resources handbook'** which develops and expands on the above. When complete, we'd like to offer this handbook for wider use within the University
- **'PBL facilitators support groups'**, of 3-4 staff, who met at the end of each contact with students. These groups probably served many functions, such as: providing an

opportunity for reflection; a generally supportive and encouraging environment, in which we could develop confidence and skills; an opportunity to compare and contrast ideas on students' use of the PBL process and their apparent learning; a mechanism through which we could make contingency plans to cover sickness etc.

- **the purchase of 'PBL kitbags'**, many SoH staff are based on one campus and teach on up to 4 others. We often travel during lunch times and required a way of easily transporting the variety of materials which PBL is dependant upon and the hardcopy resource handbook.

Each group was allocated one staff facilitator, an average of 11 students, a group name, and was then time tabled and roomed on either Mondays or Fridays, mornings or afternoons. The implementation of this occurrence of PBL involved 15 hours of actual class contact for each facilitator and student group. (Please refer to Figure 2). This compares with 27 hours contact which previous cohorts received.

**Figure 2. An example of one time table. Representing provision for 25% of New Cross students.**

Group B2 @ New Cross only				
Each 3 hr EMS slot as below	Dogs 1 lecturer to facilitate shaded sessions only ↓	Eagles 1 lecturer to facilitate shaded sessions only ↓	Frogs 1 lecturer to facilitate shaded sessions only ↓	Goats 1 lecturer to facilitate shaded sessions only ↓
EMS Slot 1 Fri 8 Feb 2-5	Pre-reading for term.			
EMS Slot 2 Fri 15 Feb 2-5	Introduce PBL Mary Rayner	Introduce PBL Sue Brock	Introduce PBL Lyn Swindlehurst	Introduce PBL Georgie Wood
EMS Slot 3 Fri 22 Feb 2-5	Commence enigma 1	Commence enigma 1	Commence enigma 1	Commence enigma 1
EMS Slot 4 Fri 1 Mar 10-1	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)
EMS Slot 5 Fri 1 Mar 2-5	Feedback from enigma 1 Commence enigma 2	Feedback from enigma 1 Commence enigma 2	Feedback from enigma 1 Commence enigma 2	Feedback from enigma 1 Commence enigma 2
EMS Slot 6 Fri 8 Mar 10-1	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)
EMS Slot 7 Fri 8 Mar 2-5	Feedback from enigma 2 Commence enigma 3	Feedback from enigma 2 Commence enigma 3	Feedback from enigma 2 Commence enigma 3	Feedback from enigma 2 Commence enigma 3
EMS Slot 8 Fri 15 Mar 10-1	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)	Researching and groupwork (no facilitator or room required)
EMS Slot 9 Fri 15 Mar 2-5	Feedback from enigma 3 Evaluate EMS and PBL	Feedback from enigma 3 Evaluate EMS and PBL	Feedback from enigma 3 Evaluate EMS and PBL	Feedback from enigma 3 Evaluate EMS and PBL

Discussions regarding creation and use of individual enigmas were complex. The literature offers some initial ideas for guidance. However, these were consequently shaped into a useful framework, called PIA PRISM, draft details of which are contained within the On-line PBL resources handbook (WOLF). Eventually, from a pool of 15 options, the following 3 enigmas representing a range of styles were selected for use:

**Enigma 1:** *'Cleanliness is next to Godliness' (Sister Jones).*

**Enigma 2:** *Doris Turner is a 55yr old white woman who visits your well woman clinic at the surgery. Doris works as a 'dinner lady' at the local school and her husband is a long distance lorry driver. They have 3 grown up children who are all married and live a long way away from home. After discussing her past medical history you find that Doris considers herself to be healthy, having suffered only from the usual childhood illnesses. Her father died at the age of 56 following a heart attack. Her mother, who is 74 has been living with Doris for the past 2 years after having a stroke. At the moment, Doris weighs 76.2kg, is 1.5m tall and has a BP of 165/100. Doris enjoys gardening, is very keen on DIY and uses the bus to get into town to do her shopping. She loves a range of different foods, shares a bottle of wine with her mum a couple of times a week and smokes about 15 cigarettes a*

*day. Doris doesn't always feel safe going out and leaving her mum as she "gets a bit confused".*

**Enigma 3:** *The song 'So-Strong' by Labi Sifri was played and lyric sheet was distributed. (With the written permission of the artist and his publisher)*  
[http://www.so-strong.com/lyrics/so\\_strong.htm](http://www.so-strong.com/lyrics/so_strong.htm).

## The outcomes

Originally, anticipated outcomes of the project were that, as a consequence of the student centered, small group, problem based learning, students would be able to do 3 things. Firstly, quickly access relevant and appropriate literature from diverse sources in order to contribute to understanding the problems of patients and clients. Secondly, demonstrate deep understanding and awareness of the links between the subject specific outcomes of the three Semester 2 modules and finally, that they would undertake problem solving activities in order to suggest courses of action and care based on the above.

Precise measurement of actual outcomes is beyond the remit of simple evaluation, but it is possible to extrapolate and suggest outcomes from the following. Firstly, the written responses, on 3 evaluation forms (full, collated responses contained in Appendices 2, 3, and 4). Secondly, verbalizations in the evaluation session, and finally, the formative evaluation, which took place via both brief weekly meetings of the project team and regular emailed consultations. Areas evaluated include: both staff and students' experience of project planning and operationalization; their experience of using PBL; and, the possible impact of this upon them and their work. For relative ease of analysis, the actual written evaluation forms contained stems on which participants were requested to polarize their responses.

## Evaluation

The staff and student evaluation forms attracted a response rate of 70% and 60% respectively. Analysis of the responses suggest this project has facilitated us to acquire some of the necessary knowledge and skills to meet the agenda surrounding nurse education. Particularly significant is that consistently over 70% of staff, and students, consider the experience with PBL will have *further enabled* students to suggest appropriate care, understand problems in the clinical area and integrate several aspects of the curriculum. They also consider students will have been facilitated: to engage in problem solving activities; quickly and independently access a range of literature; and, 'learn how to learn'. Obviously, this enablement takes place subsequent to the learning and skills development that took place in term 1 of the course.

In addition, staff seem to consider they felt involved in the project and have further developed important skills. Many staff particularly valued the opportunity to work with students in ways that are congruent with their personal philosophies, for example, drawing on humanist, student centered ideas. Despite this, some staff found the experience of shifting from 'teaching' to 'facilitating' very challenging, for example, adoption of a pedagogic approach to teaching may often be about learning action and behavior. Facilitation demands we provide conditions for student's growth and development that may be beyond our own experience and skills, such as, congruence, empathy and acceptance.

Verbal feedback from other staff (although in the main enthusiastic) suggests they found their particular student group to be challenging in many ways. Some groups of students simply refused, or were unable, to appreciate the significance of the small group activities. Indeed, many were antagonistic to this as they actively 'boycotted' the process, and were also unable to concentrate on group action. Many staff and students suggested this may

have arisen as a consequence of: attempting to implement the PBL philosophy and process within an environment which may often be antithetical; the ways in which we prepared ourselves and the students for the process; and/or, there being no overt and summative assessment of the content learned in this way. It seems, we sometimes did not sufficiently clearly communicate the inter-dependence of the skills and content within the curriculum. For example, some groups quickly spotted they could use Enigma 1 to explore material which is summatively assessed in NH1035, others, did not. (i.e. beliefs and values about the provision of health care services and also power and control in health care.)

## Benefits

From the evaluation reported above and from verbal feedback to the project leader, it appears that this project has been of benefit to:

### **Individual staff and students, and**

- most people, involved in this project, found it to be a rewarding experience
- PBL often led to generation of much excitement around learning
- use of the PBL process assisted students to make more meaningful links, and friendships, with other students and staff
- staff had the opportunity to engage in systemic learning, through risk taking and reflection, both individually and in small groups
- as a group of staff, we valued the opportunity to change the focus of our actions. This led to us: empathising with students (more); attempting to enable and empower students; helping individuals recognize their strengths and weaknesses; learning from our students; and, placing them more at the center of learning.

### **The development of learning styles, and**

- we seem to have facilitated many students to engage in activities which promote deep learning
- more students are prepared to take an even more active role in their learning

### **The agenda of our purchasers, and**

- use of PBL has further enabled students to develop skills vital to clinical practice
- we have further moved towards placing learning within a practice focused context, thus facilitating the integration of theory and practice.

## Future developments

This project has provided the possibility for a continuation strategy for curriculum and staff development in the School of Health, with added possibilities for multi-professional use of PBL. Indeed:

- planning for expanding use of PBL within the RN/DipHE is well under-way. We are considering how to make the links between different parts of the curriculum even more explicit and are assessing different ways of introducing PBL to students. 2 module teams have also contributed module time to a new pool of PBL hours. Nursing branch teams have also shown interest (Level 2).
- within the RN/BSc, the extra modular study, in year 1, will utilize PBL as the sole means of delivery, reducing 75 'theory' contact hours to 25 hours actually facilitated in the classroom

- the BSc European Nursing now has 1 module, at Level 3, delivered solely via use of PBL
- the project leader is to attend further developmental workshops, and will also present work on writing and evaluating enigma at a major international conference, this summer
- the WOLF based PBL handbook may be further evaluated, re-drafted and utilized elsewhere within the University
- Learning and Teaching strategy project funding for 2002/3 has just been obtained, in order to develop a Multi-media On-line Town (MOLT) which will mainly serve as a basis for developing electronic PBL enigmas and clinical simulations.

## Acknowledgements

A project team, the process and product of our labour, are inseparable from the context within which they were conceived and propagated. Thus, there would be nothing in this report without contributions from a wide range of University staff, such as: the immediate project team which included Nic Kirby, Mike Fogarty, and Lindsey Pitt. Other staff took the opportunity to facilitate a group of students: Sally Hill, Mary McCoy, Wendy Moran, Pauline Walsh, Georgie Wood, Pat Owen, Mat Swindlehurst, Rodger Byrne, Lyn Sarson, Mary Rayner, Lyn Swindlehurst, Chris Watkinson, Abbie Barnes, Andrea Mason, Peter Eggison, Rachel Skinner, Veronica Jackson, Yash Gunga, David Hanson, Louise Winfield, and Angela Reynolds. Others were able to contribute to some aspects of planning: Rita Bayley, Barbara Davies, Nicki Stephens, Carol Ollerton, Lyn Westwood, Carol Scott, Tony Batson, Chris Thompson, Pam Wakefield, Peter Wildsmith. Of course, our students allowed us to facilitate them, Wendy Moran (our Teaching and Learning Co-ordinator) kept us on track, and CELT provided us with the necessary financial support. Thanks very much to you all.

## References

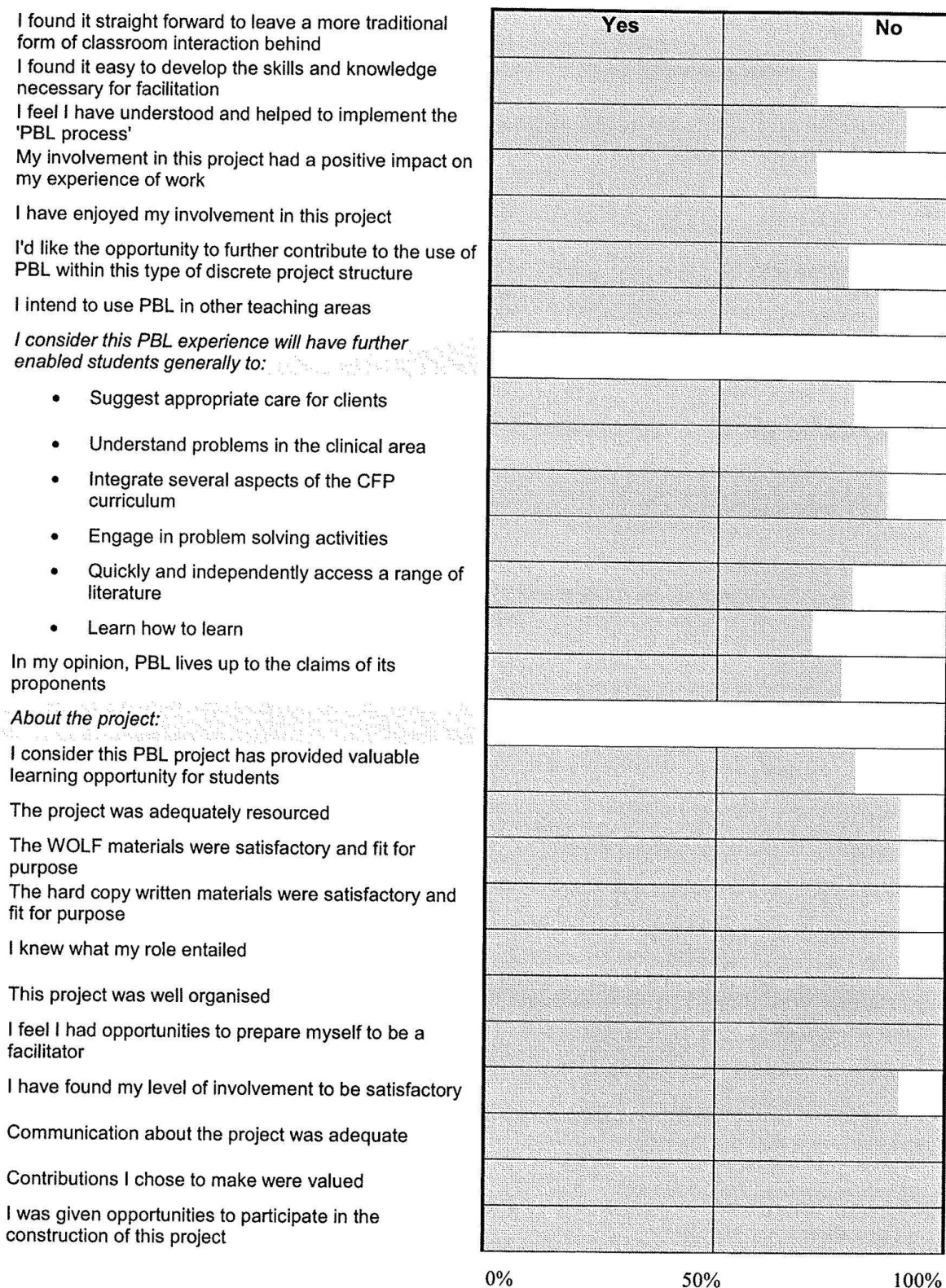
- Andrews, M., Jones, P.R. (1996) Problem-based Learning in an Undergraduate Nursing Programme: A Case Study, *Journal of Nursing Education*, 33, pp. 45-47.
- Bentley, G.W. Nugent, K.E. (1996) Problem-based Learning in a Home Health Course, *Nursing Connections*, 9, pp.29-39.
- Cooke, M. Donovan, A. (1998) The Nature of the Problem: The Intentional Design of Problems to Facilitate Different Levels of Student Learning, *Nurse Education Today*, 18, pp. 462-464.
- DOH. (1999) *Making A Difference - The New NHS*. London: The Stationery Office
- Dolmans. D., Schmidt, H. (1996) The Advantages of Problem-based Curricula, *Post Grad Medicine*, 72, pp. 535-538.
- Glen, S., Wilkie, K. (2000) *Problem based learning in nursing*. Basingstoke: Macmillan.
- Spencer, J.A., Jordon, K.R. (1999) Learner Centered Approaches in Medical Education, *British Medical Journal*, 318, pp. 1280-1283.
- UKCC. (1999) *Fitness for Purpose*, UKCC, Commission for Nursing and Midwifery Education.

**APPENDIX 1**

<b>Initial SWOT analysis of: ‘Problem Based Learning’,</b> (undertaken by PBL Team, at first team meeting)	
<p style="text-align: center;"><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Empowering</li> <li>• Different/innovative way of delivery</li> <li>• Students will develop: negotiation skills, leadership skills, assertiveness</li> <li>• They will learn how important co-operation is</li> <li>• They’ll read more deeply and widely</li> <li>• It will increase students interest, motivation and enthusiasm</li> <li>• The group dynamics will help with clinical practice</li> <li>• They will value each other’s contributions</li> <li>• It is more appropriate to a variety of learning styles</li> <li>• They can learn at their own pace</li> <li>• It will help to integrate the curriculum – theory and practice</li> <li>• It helps to perpetuate notions of holism</li> <li>• It is fairly resource efficient</li> <li>• Staff will learn a lot from students too.</li> </ul>	<p style="text-align: center;"><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Easy for students to opt out</li> <li>• Possibly learning diminished by dual processes taking place</li> <li>• The learning style may be threatening to some</li> <li>• They may not have the background skills</li> <li>• The facilitators confidence and knowledge</li> <li>• The quality of our facilitation</li> <li>• Heavy initial preparation</li> <li>• Difficult to assess outcomes</li> <li>• Fragmentation of contents of curriculum</li> <li>• Sickness of staff or students</li> <li>• May be resource heavy</li> <li>• Is not assessed</li> </ul>
<p style="text-align: center;"><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Team support</li> <li>• Re-assert most Senior Lecturers are nurses too</li> <li>• We’ll be able to address areas of questionable clinical practice</li> <li>• Establishing group ground rules</li> <li>• The background notes to guide facilitators</li> <li>• We’ll be able to facilitate, as opposed to directing</li> <li>• It will be liberating for us and students</li> <li>• We will all grow, through feeling the fear and doing it anyway</li> <li>• New challenges</li> <li>• Getting to know students better</li> <li>• Empowering</li> <li>• The partnership</li> <li>• Multi-professional/specialism collaborations</li> <li>• Previous problematic behaviour of group members can be addressed via PBL.</li> <li>• Students will move more quickly from dependence to independence</li> </ul>	<p style="text-align: center;"><b>Threats</b></p> <ul style="list-style-type: none"> <li>• The isolation of this project within the rest of the curriculum</li> <li>• The ‘blame culture’</li> <li>• Seeing PBL as ‘just an approach to learning’</li> <li>• Facilitators turning up and group not</li> <li>• Students may chose not to ‘do PBL’</li> <li>• Our ability to give up control over what happens in the classroom</li> <li>• The other pressures on SLs to carry out other activities</li> <li>• Students going off in different ways to what the facilitators may think is helpful</li> <li>• The fear that students will not learn</li> <li>• That they will not challenge themselves enough</li> <li>• Our idea of success, may vary from the students</li> <li>• Our concerns about our preparedness</li> </ul>

## APPENDIX 2

### Student evaluation of PBL project and PBL experience





## APPENDIX 3

### Student evaluation of PBL experience

#### *In order to do well at PBL I needed to:*

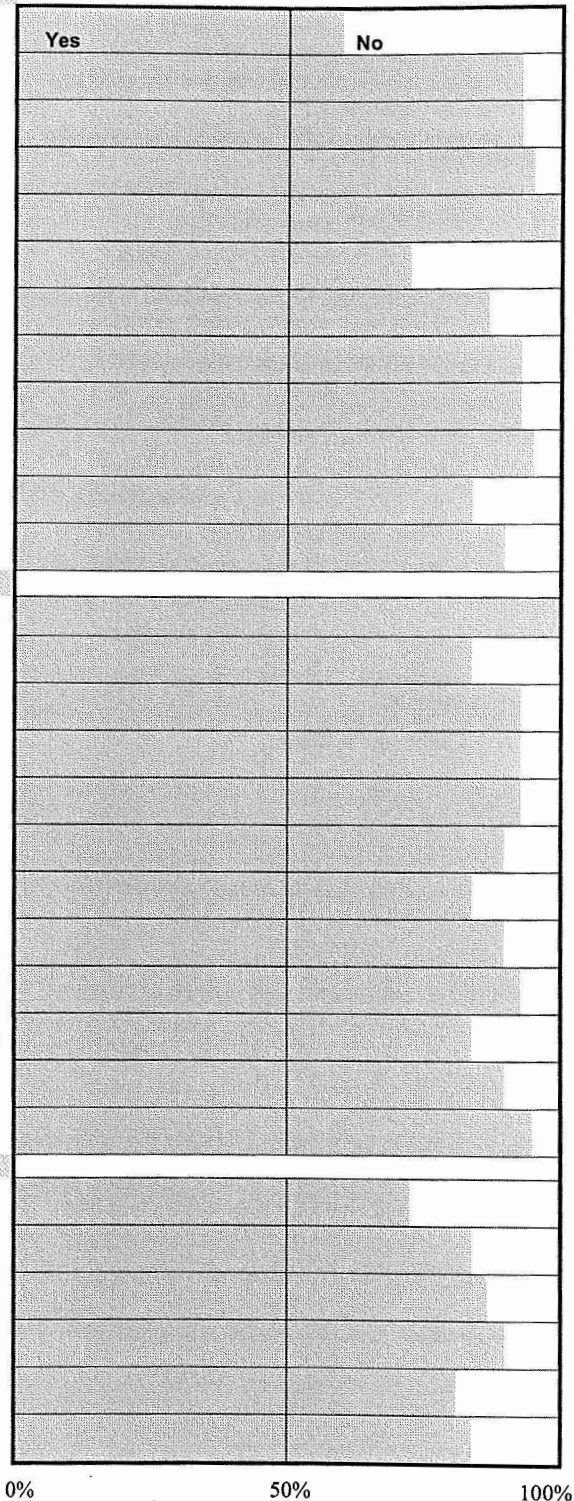
- Think very hard
- Speak up and get my ideas across
- Work out ideas with other students
- Listen to other people's opinions and ideas
- Discuss a lot with the others
- Help to resolve any conflict which arose
- Be flexible and negotiate with the others
- Take responsibility and decide what is important to learn
- Compromise with the others
- Search for knowledge and information
- Work out for myself what I think is 'right' and 'wrong'
- Reflect back on what I've learnt and how

#### *Our PBL facilitator:*

- Seemed to understand the objectives of the PBL process
- Let us know what was expected of us
- Helped us to take responsibility for what we wanted to study
- Helped us to create a comfortable, safe learning environment
- Provided opportunities for us to help each other
- Was enthusiastic, and motivated us to do our best work
- Gave us the impression they could learn a lot from us
- Asked non-directive, challenging questions
- Encouraged us to really try to understand things
- Gave us different types of feedback on how we were doing
- Understands what students can learn in the time available
- Helped us to reflect on our learning, both knowledge and skills

#### *As a consequence of this PBL I think I will be better able to:*

- Learn how to learn
- Quickly and independently access a range of literature
- Engage in problem solving activities
- Integrate several aspects of the common foundation program
- Understand problems in the clinical area
- Suggest appropriate care for clients



## APPENDIX 4

### Staff and student evaluation of the enigma

	Enigma 1		Enigma 2		Enigma 3	
	Yes	No				
Was it clear why this enigma was chosen?						
Did it help students to meet the learning outcomes for the term?						
Did students gain content-based knowledge?						
Did they acquire skills as a consequence of studying the enigma?						
Did the enigma facilitate students to integrate knowledge and ideas from different subjects?						
Were you satisfied with the type of guidance you received in order to work with this enigma?						
Was the basic subject of the enigma relevant to nursing practice?						
Would it have been better to focus on a more general area/issue?						
Was the enigma easy to use?						
Was it easily communicated to students?						
Were sufficient resources available to students?						
Were sufficient hours allocated to study of the enigma?						
Was the right balance of group/individual hours provided?						
Could they have been allocated more effectively?						
Did the students have a sufficient knowledge base to enable them to engage with the enigma?						
Was the work on the enigma enjoyable?						
Did the enigma appear to have an impact on students?						
Do students consider they have 'learnt a lot' from use of this enigma?						
Did students seem to manage the contradictions and debates in the literature they used?						
Was the enigma motivating?						
Was the length of the enigma about right?						
Should it have been shorter?						
Was the amount of detail about right?						
Was the degree of openness (of interpretation) contained within the enigma appropriate?						
Did the enigma make use of different physical senses i.e. hearing, seeing, feeling?						
Did it appear to engage students in a number of different ways?						